HHS Public Access

Author manuscript

J Hum Lact. Author manuscript; available in PMC 2017 August 30.

Published in final edited form as:

J Hum Lact. 2017 August ; 33(3): 578–581. doi:10.1177/0890334417693210.

Monitoring the World Health Organization Global Target 2025 for Exclusive Breastfeeding: Experience From the United States

Priya M. Gupta, MPH[1], **Cria G. Perrine, PhD**[1], **Jian Chen, MS**[1,2], **Laurie D. Elam-Evans, PhD, MPH**[3], and **Rafael Flores-Ayala, DrPH**[1]

[1]Division of Nutrition, Physical Activity, and Obesity, Centers for Disease Control and Prevention, Atlanta, GA, USA

[2]DB Consulting Group Inc., Atlanta, GA, USA

[3]Immunization Services Division, Centers for Disease Control and Prevention, Atlanta, GA, USA

Abstract

Background—Exclusive breastfeeding under 6 months, calculated from a single 24-hour recall among mothers of children 0 to 5 months of age, is a World Health Organization (WHO) indicator used to monitor progress on the 2025 global breastfeeding target. Many upper-middle-income and high-income countries, including the United States, do not have estimates for this indicator.

Research aim—To describe the prevalence of exclusive breastfeeding under 6 months in the United States.

Methods—We used a single 24-hour dietary recall from the National Health and Nutrition Examination Survey 2009–2012 to calculate the prevalence of exclusive breastfeeding under 6 months. We discuss our results in the context of routine breastfeeding surveillance, which is reported from a national survey with different methodology.

Results—Among children younger than 6 months, 24.4%, 95% confidence interval [17.6, 31.1], were exclusively breastfed the previous day.

Conclusion—To our knowledge, this is the first estimate of the WHO indicator of exclusive breastfeeding under 6 months for the United States. This study supports the global surveillance and data strategy for reporting to the WHO on the 2025 target for exclusive breastfeeding.

Keywords

breastfeeding; breastfeeding rates; epidemiological methods; exclusive breastfeeding; infant nutrition; nutrition

Corresponding Author: Priya M. Gupta, MPH, Division of Nutrition, Physical Activity, and Obesity, Centers for Disease Control and Prevention, 4770 Buford Highway NE, Mailstop F-77, Chamblee, GA 30341, USA., kso7@cdc.gov.

Authors' Note

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Background

Breastfeeding reduces infant mortality and morbidity and supports the healthy growth and development of children. It also improves the health of mothers by reducing their risk of certain noncommunicable diseases, including breast and ovarian cancers and diabetes (Victora et al., 2016). According to the 2016 *Lancet* series, breastfeeding is one of the "highest impact interventions" and, if scaled up, could prevent 823,000 deaths annually among children in 75 high-mortality low-income and middle-income countries (Rollins et al., 2016). Despite these benefits, exclusive breastfeeding rates remain relatively low globally.

In May 2012, the World Health Assembly, the decision-making body of the World Health Organization (WHO), passed the Comprehensive Implementation Plan on Maternal, Infant, and Young Child Nutrition (MIYCN) (WHO, 2014). The MIYCN plan outlines six WHO global nutrition targets to be accomplished by the year 2025, one of which is increasing exclusive breastfeeding among infants younger than 6 months to 50% by the year 2025 (WHO, 2014).

The MIYCN plan also outlines actions to support the achievement of the 2025 global targets, including a universal approach to monitoring progress toward the targets at the national and global levels. The MIYCN monitoring and surveillance framework has a core set of indicators and targets that will be used to track progress in all WHO member states. The WHO indicator of exclusive breastfeeding under 6 months is calculated from a 24-hour recall among children younger than 6 months. The World Health Statistics Report 2015 revealed that many upper-middle-income and high-income countries lack accurate assessment of the prevalence of exclusive breastfeeding under 6 months for monitoring progress toward the 2025 global target (WHO, 2015). This is likely because surveys such as the Demographic Health Survey and the Multiple Indicator Cluster Survey, which are commonly conducted in low-income and middle-income countries, include questions on infant intake in the previous 24 hours, allowing for calculation of the WHO indicator for exclusive breastfeeding (United Nations International Children's Emergency Fund [UNICEF], 2014; United States Agency for International Development, 2016), whereas higher income countries often have different sources for breastfeeding surveillance that may not allow for calculation of this indicator.

Currently, the United States routinely monitors breast-feeding rates using data from the National Immunization Survey (NIS) (Centers for Disease Control and Prevention [CDC], 2016b). It is not possible to calculate the WHO indicator of exclusive breastfeeding under 6 months using NIS data, as these data are assessed among mothers of children 19 to 35 months of age and exclusive breastfeeding duration is based on recall of their infants' age the first time they introduced any food or beverage besides human milk (CDC, 2016c). National Immunization Survey data are used to report the percentage of infants at 6 months of age who were exclusively breastfed (i.e., did not consume any food or beverages except human milk before 6 months of age), whereas the WHO indicator is the percentage of infants ages 0 to 5.9 months who were exclusively breast-fed the preceding day. Although the estimate from the NIS is not consistent with the WHO indicator, data from the NIS have

been used by the WHO to estimate U.S. progress on the 2025 target (WHO, 2015). This use of estimates from different indicators is not ideal, particularly as there is little understanding of how these estimates may compare in different settings. To our knowledge, a measure of exclusive breastfeeding under 6 months has not been estimated for the United States; however, it is possible to calculate this indicator from the National Health and Nutrition Examination Survey (NHANES).

Methods

Design

We conducted a secondary analysis of cross-sectional data from the NHANES, an ongoing, nationally representative survey of the noninstitutionalized civilian population in the United States (CDC, 2016a). It uses a complex, multistage, probability design to select approximately 5,000 participants (CDC, 2016a).

Sample

Data collection in the NHANES has three components, including an eligibility screening, a household interview, and a physical examination. The initial screening interview is conducted in the home to determine whether any household members are eligible to participant in the interview and examination. Detailed eligibility criteria are described elsewhere (CDC, 2013a, 2013b, 2014). Participants are selected into the NHANES sample based on their demographic characteristics, including but not limited to age, race/ethnicity, and income. NHANES samples are selected to represent the U.S. population of all ages (CDC, 2013a, 2013b, 2014).

Following the initial screening interview, an in-home interview is conducted to collect data on individual-level demographic, health, and nutrition data as well as information on the household. The physical examination portion is generally conducted in Mobile Examination Centers and includes physical measurements, a dental examination, and collection of urine and blood samples.

The analysis sample was restricted to infants who (a) participated in both the household interview and examination, where the first dietary recall was completed, and (b) were younger than 6 months. There were 363 infants younger than 6 months who participated in the household interview and examination in the NHANES 2009–2012. Five participants were excluded due to incomplete dietary data. Our final sample included 358 infants. Infants consuming human milk were identified by an 8-digit code (human milk code: 11000000) assigned to food items by the United States Department of Agriculture (Ahuja et al., 2012; United States Department of Agriculture, 2012, 2014) for use in the *Food and Nutrient Database for Dietary Studies*. An infant was considered to be exclusively breastfed if the only food or beverage consumed the previous day was human milk.

Data Collection

NHANES questionnaires for children younger than 6 years were completed by a proxy, who was generally the person most knowledgeable about the survey participant’s dietary intake

or health (CDC, 2009–2010–2011–2012). Survey participants were asked to recall the type and quantity of all foods and beverages that each infant consumed during the 24-hour period prior to the interview. Dietary recall data in the NHANES are collected on 2 different days. However, for the purposes of this analysis, only day 1 dietary data were used, as this is consistent with the methodology used by the WHO (UNICEF & WHO, 2007).

Statistical Analysis

To maximize sample size, data from 2009 to 2012 were combined (Table 1). Four-year sample weights were created to account for the complex survey design, survey non-response, and poststratification (CDC, 2009–2010–2011–2012). Exclusive breastfeeding prevalence and the 95% confidence interval for the combined NHANES sample were estimated as weighted percentages, taking into account the complex survey design (Table 2). A 4-year weight variable was created using the dietary day 1 recall weight (WTDRD1).

Results

Among children younger than 6 months, 24.4%, 95% CI [17.6, 31.1], were exclusively breastfed the previous day (see Table 2).

Discussion

To our knowledge, this is the first estimate of the national prevalence of exclusive breastfeeding under 6 months among U.S. infants. The indicator routinely calculated from the NIS describes the prevalence of exclusive breastfeeding among a cohort of children at 6 months of age, whereas the WHO estimate describes the prevalence of exclusive breastfeeding among a cohort of children under 6 months of age (0–5.9 months). Because exclusive breastfeeding rates decrease as children age (CDC, 2016b), as expected, the prevalence of exclusive breastfeeding at 6 months was lower (18.2%), 95% CI [17.7, 18.7] (Chen, 2016), than the estimate of exclusive breastfeeding among children younger than 6 months (24.4%, NHANES 2009–2012). These estimates are from different data sources but give a sense of the difference in prevalence for the different indicators.

Strengths of this study include the use of a nationally representative, standardized source for nutrition data. NHANES data allow us to calculate reliable estimates for all ages of the U.S. population. Our estimate can serve as a baseline estimate for monitoring progress toward the 2025 WHO target for exclusive breastfeeding for the United States. Limitations to this analysis include a small sample size of children younger than 6 months in the NHANES. Our estimate is relatively small, and the estimate for exclusive breastfeeding under 6 months has a wide confidence interval. This may make it difficult to monitor small changes in prevalence over time. Given the large sample size and ability to report both national- and state-level estimates, the NIS will continue to be used for routine U.S. surveillance of breastfeeding rates. The United States may be unique, in that another national survey with 24-hour diet recall data on young children was available to calculate exclusive breastfeeding under 6 months.

Conclusion

This study supports the global surveillance and data strategy for reporting to the WHO on the 2025 target for exclusive breastfeeding. Data from the NHANES can be used to calculate a baseline measure of the prevalence of exclusive breastfeeding under 6 months in the United States. However, further work is needed to understand how existing data sources, with a greater sample size, such as the NIS, may be used to accurately estimate early exclusive breastfeeding.

Acknowledgments

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

References

Ahuja, JKA., Montville, JB., Omolewa-Tomobi, G., Heendeniya, KY., Martin, CL., Steinfeldt, LC., … Moshfegh, AJ. USDA food and nutrient database for dietary studies, 5.0. Beltsville, MD: U.S. Department of Agriculture, Agricultural Research Service, Food Surveys Research Group; 2012. Retrieved from https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/fndds/fndds5_doc.pdf

Centers for Disease Control and Prevention. National Health and Nutrition Examination Survey. 2009–2010. Retrieved from http://wwwn.cdc.gov/nchs/nhanes/search/nhanes09_10.aspx

Centers for Disease Control and Prevention. National Health and Nutrition Examination Survey. 2011–2012. Retrieved from http://wwwn.cdc.gov/Nchs/Nhanes/Search/Nhanes11_12.aspx

Centers for Disease Control and Prevention. National Health and Nutrition Examination Survey: Estimation procedures, 2007–2010. 2013a. Retrieved from https://www.cdc.gov/nchs/data/series/sr_02/sr02_159.pdf

Centers for Disease Control and Prevention. National Health and Nutrition Examination Survey: Sample design, 2007–2010. 2013b. Retrieved from https://www.cdc.gov/nchs/data/series/sr_02/sr02_160.pdf

Centers for Disease Control and Prevention. National Health and Nutrition Examination Survey: Sample design, 2011–2014. 2014. Retrieved from https://www.cdc.gov/nchs/data/series/sr_02/sr02_162.pdf

Centers for Disease Control and Prevention. About the National Health and Nutrition Examination Survey. 2016a. Retrieved from https://www.cdc.gov/nchs/nhanes/about_nhanes.htm

Centers for Disease Control and Prevention. Breastfeeding among US children born 2002–2013, CDC National Immunization Survey. 2016b. Retrieved from https://www.cdc.gov/breastfeeding/data/nis_data/index.htm

Centers for Disease Control and Prevention. NIS survey methods. 2016c. Retrieved from http://www.cdc.gov/breastfeeding/data/nis_data/survey_methods.htm

Chen, J. [NIS data among children born in 2009–2012]. 2016. Unpublished raw data

Rollins NC, Bhandari N, Hajeebhoy N, Horton S, Lutter CK, Martines JC, … Victora CG. Why invest, and what it will take to improve breastfeeding practices? The Lancet. 2016; 387(10017):491–504. DOI: 10.1016/S0140-6736(15)01044-2

United Nations International Children's Emergency Fund. Multiple Indicator Cluster Survey (MICS). 2014. Retrieved from http://www.unicef.org/statistics/index_24302.html

United States Agency for International Development. The Demographic Health Surveys Program: Quality information to plan, monitor, and improve population, health, and nutrition programs. Washington, DC: Author; 2016.

United States Department of Agriculture, Agricultural Research Service. USDA food and nutrient database for dietary studies, 5.0. 2012. Retrieved from Food Surveys Research Group Home Page: http://www.ars.usda.gov/ba/bhnrc/fsrg

United States Department of Agriculture, Agricultural Research Service. USDA food and nutrient database for dietary studies 2011–2012. 2014. Retrieved from Food Surveys Research Group Home Page: http://www.ars.usda.gov/ba/bhnrc/fsrg

Victora CG, Bahl R, Barros AJD, França GVA, Horton S, Krasevec J, … Rollins NC. Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. The Lancet. 2016; 387(10017): 475–490. DOI: 10.1016/S0140-6736(15)01024-7

World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), United States Agency of International Development (USAID), Food and Nutrition Technical Assistance (FANTA) Project/Academy for Educational Development (AED), University of California at Davis (UC Davis), International Food Policy Research Institute (IFPRI). Indicators for assessing infant and young child feeding practices: Part 1, definitions. 2008. Retrieved from http://www.unicef.org/nutrition/files/IYCF_updated_indicators_2008_part_1_definitions.pdf

World Health Organization. Indicators for the global monitoring framework on maternal, infant and young child nutrition. 2014. Retrieved from http://www.who.int/nutrition/topics/indicators_monitoringframework_miycn_background.pdf

World Health Organization. World health statistics. 2015. Retrieved from http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

Key Messages

- Exclusive breastfeeding under 6 months is a World Health Organization indicator used to monitor progress on the 2025 global breastfeeding target.
- The United States lacks an estimate for this indicator, as routine breastfeeding surveillance methods in the United States differ from the World Health Organization surveillance methods.
- Approximately 24% of children younger than 6 months are exclusively breastfed.
- This study supports the global surveillance and data strategy for reporting to the World Health Organization on the 2025 target for exclusive breastfeeding.

Table 1

Demographic Characteristics of Study Sample, National Health and Nutrition Examination Survey, 2009–2012.

	n **(%)**	**95% CI**
Infant age		
< 1 month	22 (4.6)	[2.2, 7.0]
1 month	58 (21.5)	[16.0, 27.0]
2 months	74 (17.6)	[12.9, 22.4]
3 months	72 (20.1)	[15.4, 24.8]
4 months	62 (17.8)	[12.2, 23.4]
5 months	70 (18.3)	[13.0, 23.7]
Infant gender		
Female	181 (52.5)	[44.6, 60.4]
Male	177 (47.5)	[39.6, 55.4]
Race/ethnicity		
Non-Hispanic, White	113 (53.9)	[44.9, 62.8]
Non-Hispanic, Black	72 (13.9)	[9.6, 18.1]
Mexican American	100 (16.7)	[11.4, 21.9]
Other Hispanic or multiracial	73 (15.6)	[10.3, 20.9]
Poverty to income ratio		
< 130% of poverty-income ratio	177 (40.1)	[33.9, 46.2]
≥130% of poverty-income ratio	154 (59.9)	[53.8, 66.1]

Note. $N = 358$. CI = confidence interval.

Table 2

Exclusive Breastfeeding Under 6 Months[a] in the United States, National Health and Nutrition Examination Survey, 2009–2012.

	Exclusive breastfeeding under 6 months	
	***n* (%)**	**95% CI**
United States	358 (24.4)	[17.6, 31.1]

[a]This refers to the proportion of infants 0 to 5 months of age who were fed exclusively with human milk during the previous day (United Nations International Children's Emergency Fund & World Health Organization, 2007).